CLAIMS

1. (Original) A variable compensation circuit for capacitive adapters, comprising:

an input connector for receiving a signal output from a capacitive adapter positioned within an electric near field emitted from a component of an engine ignition system;

an output connector for outputting a signal output from the variable compensation circuit;

a capacitive divider circuit portion disposed in series between the input and output connectors, the capacitive divider circuit portion comprising at least one of a variable capacitor and a plurality of fixed capacitors; and

a switching element configured to enable at least one of adjustment of a variable capacitor and selection or de-selection of at least one of the plurality of fixed capacitors to provide one of a plurality of selected capacitance reactance ratios.

2. (Original) A variable compensation circuit for capacitive adapters according to claim 1, further comprising a first shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end.

3. (Currently Amended) A variable compensation circuit for capacitive adapters ~~according to claim 2~~, comprising:

an input connector for receiving a signal output from a capacitive adapter positioned within an electric near field emitted from a component of an engine ignition system;

an output connector for outputting a signal output from the variable compensation circuit;

a capacitive divider circuit portion disposed in series between the input and output connectors, the capacitive divider circuit portion comprising at least one of a variable capacitor and a plurality of fixed capacitors;

a first shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end; and

a switching element configured to enable at least one of adjustment of a variable capacitor and selection or de-selection of at least one of the plurality of fixed capacitors to provide one of a plurality of selected capacitance reactance ratios;

wherein the first shunt comprises a variable capacitor and a switching element disposed to isolate the first shunt from the capacitive divider circuit portion.

4. (Original) A variable compensation circuit for capacitive adapters according to claim 3, further comprising a second shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end.

5. (Original) A variable compensation circuit for capacitive adapters according to claim 4, wherein the second shunt comprises a plurality of capacitors connected in parallel and at least one switching element disposed to isolate at least a portion of the second shunt from the capacitive divider circuit portion.

6. (Currently Amended) A variable compensation circuit for capacitive adapters according to claim 5, wherein the switching element of the capacitive divider circuit portion comprises at least one of a switch, a relay, a rotary switch, an electronic switching matrix, and a ~~multiplexor~~ multiplexer.

7. (Currently Amended) A variable compensation circuit for capacitive adapters according to claim 6, wherein the switching element of the first shunt comprises at least one of a switch, a relay, and a rotary switch, and wherein the switching element of the second shunt comprises at least one of a switch, a relay, a rotary switch, an electronic switching matrix, and a ~~multiplexor~~ multiplexer.

8. (Original) A variable compensation circuit for capacitive adapters according to claim 7, wherein the switching element of the second shunt comprises a rotary switch adapted to permit selection of individual capacitors or groupings of capacitors.

9. (Original) A variable compensation circuit for capacitive adapters according to claim 7, wherein the capacitive divider circuit portion comprises a first capacitor having a capacitance of about 22 pF, a second capacitor having a capacitance of about 68 pF, and a variable capacitor having a capacitance of between about 8 and 50 pF,

wherein the first shunt comprises a variable capacitor having a capacitance of between about 300 and 1000 pF, and

wherein the second shunt comprises a first capacitor having a capacitance of about 150 pF, a second capacitor having a capacitance of about 150 pF, a third capacitor having a capacitance of about 150 pF, and a fourth capacitor having a capacitance of about 150 pF.

10. (Original) A signal compensation method for engine ignition system diagnostics testing comprising the steps of:

establishing a circuit between a capacitive sensor positioned within an electric near field emitted from a component of an engine ignition system, a variable compensation circuit, and a diagnostic testing device;

inputting a signal from the capacitive sensor to the variable compensation circuit;

monitoring the signal output from the variable compensation circuit using the diagnostic testing device; and

adjusting a capacitance value of at least one capacitor in the variable compensation circuit to provide one of a plurality of selected capacitance reactance ratios,

wherein the variable compensation circuit comprises a capacitive divider circuit portion including a plurality of capacitors and a switching element configured to enable at least one of a selection, de-selection, and adjustment of the plurality of capacitors.

11. (Original) A signal compensation method for engine ignition system diagnostics testing in accord with claim 10, wherein the adjusting step further comprises adjusting a capacitance value of a capacitive divider circuit portion disposed in series between an input connector and an output connector of the variable compensation circuit, the capacitive divider circuit portion comprising at least one of a variable capacitor and a plurality of fixed capacitors.

12. (Currently Amended) A signal compensation method for engine ignition system diagnostics testing ~~in accord with claim 10,~~ comprising the steps of:

establishing a circuit between a capacitive sensor positioned within an electric near field emitted from a component of an engine ignition system, a variable compensation circuit, and a diagnostic testing device;

inputting a signal from the capacitive sensor to the variable compensation circuit;

monitoring the signal output from the variable compensation circuit using the diagnostic testing device; and

adjusting a capacitance value of at least one capacitor in the variable compensation circuit to provide one of a plurality of selected capacitance reactance ratios,

wherein the variable compensation circuit comprises a capacitive divider circuit portion including a plurality of capacitors and a switching element configured to enable at least one of a selection, de-selection, and adjustment of the plurality of capacitors; and

~~wherein~~ the adjusting step further comprises adjusting a capacitance value of a first shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end, the first shunt comprising at least one of a variable capacitor and a plurality of fixed capacitors and a switching element disposed to isolate the first shunt from the capacitive divider circuit portion.

13. (Currently Amended) A signal compensation method for engine ignition system diagnostics testing ~~in accord with claim 10~~, comprising the steps of:

establishing a circuit between a capacitive sensor positioned within an electric near field emitted from a component of an engine ignition system, a variable compensation circuit, and a diagnostic testing device;

inputting a signal from the capacitive sensor to the variable compensation circuit;

monitoring the signal output from the variable compensation circuit using the diagnostic testing device; and

adjusting a capacitance value of at least one capacitor in the variable compensation circuit to provide one of a plurality of selected capacitance reactance ratios,

wherein the variable compensation circuit comprises a capacitive divider circuit portion including a plurality of capacitors and a switching element configured to enable at least one of a selection, de-selection, and adjustment of the plurality of capacitors; and

~~wherein~~ the adjusting step further comprises adjusting a capacitance value of a second shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end, the second shunt comprising a plurality of capacitors connected in parallel and at least one switching element disposed to isolate at least a portion of the second shunt from the capacitive divider circuit portion.

14. (Original) A signal compensation method for engine ignition system diagnostics testing in accord with claim 12, wherein the adjusting step further comprises adjusting a capacitance value of at least one of the capacitive divider circuit portion and the first shunt to adjust a firing line of a displayed waveform output from the variable compensation circuit.

15. (Original) A signal compensation method for engine ignition system diagnostics testing in accord with claim 14, wherein the adjusting step further comprises adjusting a capacitance value of at least one of the capacitive divider circuit portion and the first shunt to adjust a return to zero portion of a displayed waveform output from the variable compensation circuit.

16. (Currently Amended) A signal compensation method for engine ignition system diagnostics testing ~~in accord with claim 10~~, comprising the steps of:

establishing a circuit between a capacitive sensor positioned within an electric near field emitted from a component of an engine ignition system, a variable compensation circuit, and a diagnostic testing device;

inputting a signal from the capacitive sensor to the variable compensation circuit;

monitoring the signal output from the variable compensation circuit using the diagnostic testing device; and

adjusting a capacitance value of at least one capacitor in the variable compensation circuit to provide one of a plurality of selected capacitance reactance ratios,

wherein the variable compensation circuit comprises a capacitive divider circuit portion including a plurality of capacitors and a switching element configured to enable at least one of a selection, de-selection, and adjustment of the plurality of capacitors;

wherein the adjusting step further comprises adjusting a capacitance value of a capacitive divider circuit portion disposed in series between an input connector and an output connector of the variable compensation circuit, the capacitive divider circuit portion comprising at least one of a variable capacitor and a plurality of fixed capacitors, and

wherein the adjusting step further comprises adjusting a capacitance value of a first shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end, the first shunt comprising at least one of a variable capacitor and a plurality of fixed capacitors and a switching element disposed to isolate the first shunt from the capacitive divider circuit portion.

17. (Original) A signal compensation method for engine ignition system diagnostics testing in accord with claim 16, wherein the adjusting step further comprises adjusting a capacitance value of a second shunt connected in parallel to an output of the capacitive divider circuit portion at one end and connected to ground at another end, the second shunt

comprising a plurality of capacitors connected in parallel and at least one switching element disposed to isolate at least a portion of the second shunt from the capacitive divider circuit portion.

18. (Original) A signal compensation method for engine ignition system diagnostics testing in accord with claim 17, wherein the adjusting step further comprises adjusting a capacitance value of at least one of the capacitive divider circuit portion, first shunt, and second shunt to adjust a firing line of a displayed waveform output from the variable compensation circuit.

19. (Original) A signal compensation method for engine ignition system diagnostics testing in accord with claim 18, wherein the adjusting step further comprises adjusting a capacitance value of at least one of the capacitive divider circuit portion, first shunt, and second shunt to adjust a return to zero portion of a displayed waveform output from the variable compensation circuit.

20. (Original) A signal compensation method for engine ignition system diagnostics testing comprising the steps of:

establishing a circuit between a capacitive sensor positioned within an electric near field emitted from a component of an engine ignition system, a variable compensation circuit, and a diagnostic testing device;

inputting a signal from the capacitive sensor to the variable compensation circuit;

monitoring the signal output from the variable compensation circuit using the diagnostic testing device; and

adjusting a capacitance value of at least one capacitor in the variable compensation circuit to provide one of a plurality of selected capacitance reactance ratios,

wherein the variable compensation circuit comprises a capacitive divider circuit portion including a plurality of capacitors and a switching element configured to enable at least one of a selection, de-selection, and adjustment of the plurality of capacitors, and wherein the adjusting step further comprises adjusting a return to zero portion of a displayed waveform output from the variable compensation circuit.